Remarks

The Office Action mailed June 29, 2006 has been received and reviewed. With no claims having been amended, added, or canceled, claims 67-114 are pending. However, claims, 96-114 have been withdrawn from consideration. Reconsideration and withdrawal of the rejections are respectfully requested in view of the remarks provided herein.

Nonstatutory Double Patenting Rejection

Claims 67-95 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,534,357. Upon an indication of otherwise allowable subject matter and in the event this rejection is maintained, Applicants will provide an appropriate response.

The 35 U.S.C. §102 Rejection

The Examiner rejected claims 67-69, 71-74, 78, 80, 83-86, and 88-90 under 35 U.S.C. §102(b) as being anticipated by Kingon et al. (U.S. Patent No. 5,555,486). The Examiner alleges that all the elements of such claims are described in Kingon et al.

For a claim to be anticipated under 35 U.S.C. § 102(b), each and every element of the claim must be found in a single prior art reference. *See* M.P.E.P. § 2131, 8th Ed., Rev. 3 (Aug. 2005). Applicants submit that all of the elements of such claims are not shown in Kingon et al.

Claim 67 describes a method for use in fabrication of integrated circuits. The method provides a substrate assembly that includes a surface, wherein the surface includes oxygen. The method forms a first metal layer on a least a portion of the surface. The method also forms a second metal layer on at least a portion of the first metal layer. The method also forms an oxidation diffusion barrier layer on at least a portion of the second metal layer. The

method causes oxygen to diffuse through the first metal layer to oxidize one or more regions of the second metal layer.

Claim 78 describes a method for use in fabrication of integrated circuits. The method provides a substrate assembly that includes a surface, wherein the surface includes oxygen. The method forms a first metal layer on at least a portion of the surface, in which the first metal layer includes one or more grain boundaries. The method also forms a second metal layer on at least a portion of the first metal layer. The method also forms metal oxide regions on at least portions of the first metal layer through oxidation of at least portions of the second metal layer by diffusion of oxygen through one or more grain boundaries of the first metal layer.

Claim 88 describes a method for use in fabrication of integrated circuits. The method provides a substrate assembly that includes a surface, wherein the surface includes oxygen. The method forms a platinum layer on at least a portion of the surface. The method also forms a ruthenium layer on at least a portion of the platinum layer. The method also forms ruthenium oxide regions on at least portions of the platinum layer through selective oxidation of the ruthenium layer by diffusion of oxygen through the platinum layer.

The Examiner alleges that causing oxygen to diffuse through the first metal layer to oxidize one or more regions of the second metal layer (Claim 67), forming metal oxide regions on at least portions of the first metal layer through oxidation of at least portions of the second metal layer by diffusion of oxygen through one or more grain boundaries of the first metal layer (Claim 78), and forming ruthenium oxide regions on at least portions of the platinum layer through selective oxidation of the ruthenium layer by diffusion of oxygen through the platinum layer (Claim 88) are inherent in the process described in Kingon et al. col. 9, lines 6-9.

Applicants respectfully traverse these allegations.

Applicants assert that Kingon et al. does not teach diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer, which is described in one form or

another in each of the rejected independent claims as noted above. Further, this limitation is not inherent in the process of Kingon et al.

> The Examiner cites Kingon et al. col. 9, lines 6-9:
> The films were crystallized by annealing at 700° C. for 10 minutes in the air. The PZT thin film may also be created by other methods such as ion cluster beam deposition, sputtering, evaporation, molecular beam epitaxy, [etc].

As quoted, Kingon et al. merely teaches that the films were crystalized by annealing. Kingon et al. does not teach that oxygen diffusion will occur through the first metal layer nor does Kingon et al. teach that portions of the second metal layer will oxidize. Further, such is not inherent in view of the teachings of Kingon et al.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *See* M.P.E.P. § 2112. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

Applicants assert that diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer is not "necessarily present" in the formation of the ferroelectric capacitor described in Kingon et al., and therefore, such diffusion is not inherent therein. Applicants recognize that a variation of the process described in Kingon et al. as partially demonstrated in Figure 6 may result in the proper circumstances in which diffusion of oxygen through the first metal layer will oxidize portions of the second metal layer. However, the mere fact that a certain thing "may" result from a given set of circumstances is not sufficient to

establish inherency. To establish inherency, the diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer must be "necessarily present" in the formation of the ferroelectric capacitor described in Kingon et al.

Diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer is not "necessarily present" in the formation of the ferroelectric capacitor described in Kingon et al.

For example, referring to the ferroelectric capacitor of Figure 6, Kingon et al. teaches that the bottom electrode comprises a plurality of alternating layers that are preferably Pt and RuO_2 or Pt and Ru. *See* Kingon et al., col. 7, lines 22-23. Moreover, when referring to the layer 30_1 (i.e., the second layer) that is on the platinum layer 29 (i.e., the first layer), Kingon et al. teaches that it "may comprise iridium, ruthenium, iridium oxide, ruthenium oxide, [lanthanum strontium cobalt oxide], indium tin oxide, or [yttrium barium copper oxide]." Kingon et al., col. 7, lines 31-33. As such, in at least one variation of Kingon et al.'s Figure 6, a second layer of ruthenium 30_1 may be on a first layer of platinum 29. However, the fact that Kingon et al. discloses a structure that "may" facilitate diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer does not determine that oxygen diffusion and oxidation *will* occur.

For instance, the platinum layer 29 (i.e., the first metal layer) in Kingon et al. could have a thickness that would not allow oxygen to diffuse through the entire layer or other process steps may prevent such diffusion. As a result, second metal layer oxidation may not occur. Therefore, diffusion of oxygen through the first metal layer to oxidize portions of the second metal layer is not "necessarily present" in the formation of the ferroelectric capacitor described in Kingon et al.

As such, a *prima facie* case of inherency cannot be established based on Kingon et al. as the elements alleged to be inherent are not "necessarily present" in the ferroelectric capacitor described in Kingon et al.

With respect to claims 68, 69, and 71-74, each of which depends from independent claim 67 either directly or indirectly, Applicants submit that such claims are not anticipated by Kingon et al. for the same reasons as presented above for claim 67. In addition, such claims each recite additional elements that further support patentability when combined with claim 67.

With respect to claims 80 and 83-86, each of which depends from independent claim 78 either directly or indirectly, Applicants submit that such claims are not anticipated by Kingon et al. for the same reasons as presented above for claim 78. In addition, such claims each recite additional elements that further support patentability when combined with claim 78.

With respect to claims 89 and 90, each of which depends from independent claim 88 either directly or indirectly, Applicants submit that such claims are not anticipated by Kingon et al. for the same reasons as presented above for claim 88. In addition, such claims each recite additional elements that further support patentability when combined with claim 88.

For at least the above reasons, Applicants submit that claims 67-69, 71-74, 78, 80, 83-86 and 88-90 are not anticipated by Kingon et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

Objected Claims

Claims 70, 75-77, 79, 81, 82, 87 and 91-95 were objected to. However, at this time, claims 70, 75-77, 79, 81, 82, 87 and 91-95 have not been modified because it is believed that such claims are dependent from claims that are allowable as discussed above.

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted
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CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to **Mail Stop Amendment**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 29th day of September, 2006, at 1:19PM (Central Time).

By: _____
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